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(56) Documents cited
GB A 2140853 GB 1585717 GB 1124367
GB A 2086458 GB 1534867
GB 1596301 GB 1213971

(58) Field of search
E1J

(54) Window constructions

(57) Main frame components 10, 13 are secured together by a two-part connector comprising a member 16 which is secured in an opening in component 10 and a member 22 which engages in longitudinally extending grooves 21 provided in component 13 for carrying sealing strips (Fig. 2). In an openable window components 27, 29 are secured together by a one-piece corner connector 33 which engages in the adjacent ends of the components 27, 29 and which has a face formed with a groove which forms a continuation of the grooves provided in the components 27, 29 for carrying sealing strips (Fig. 8).

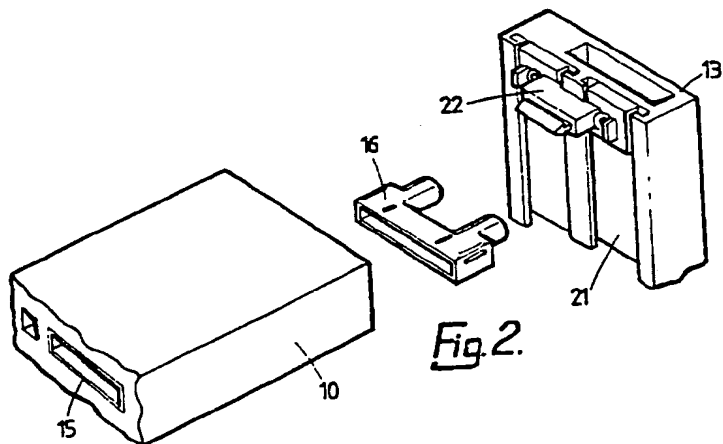
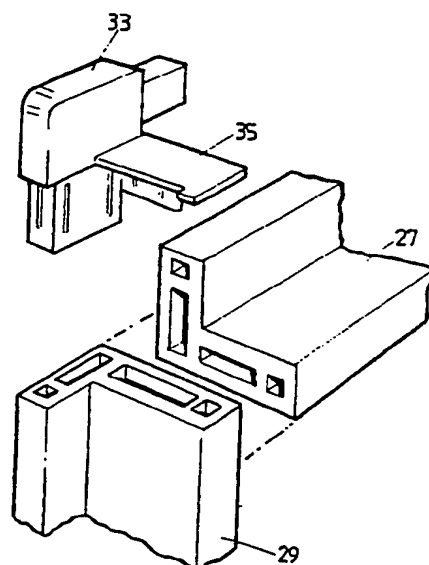


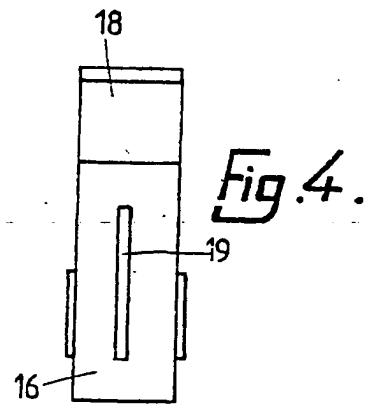
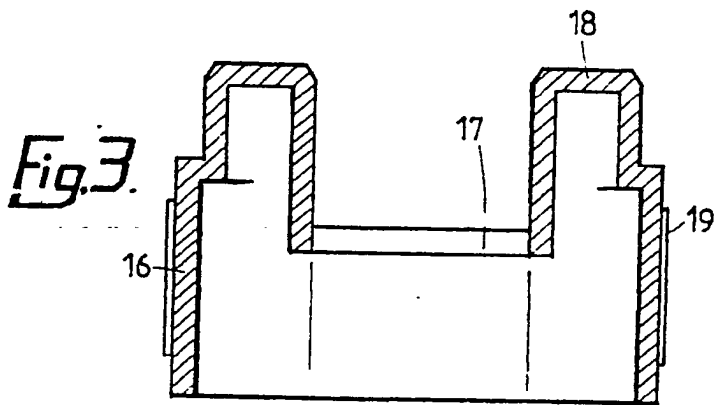
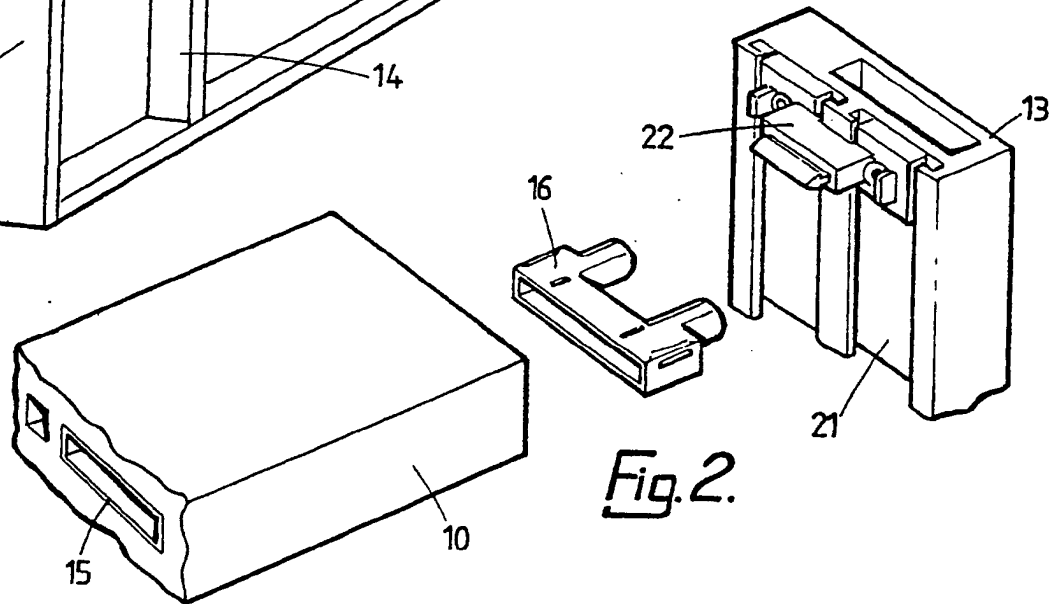
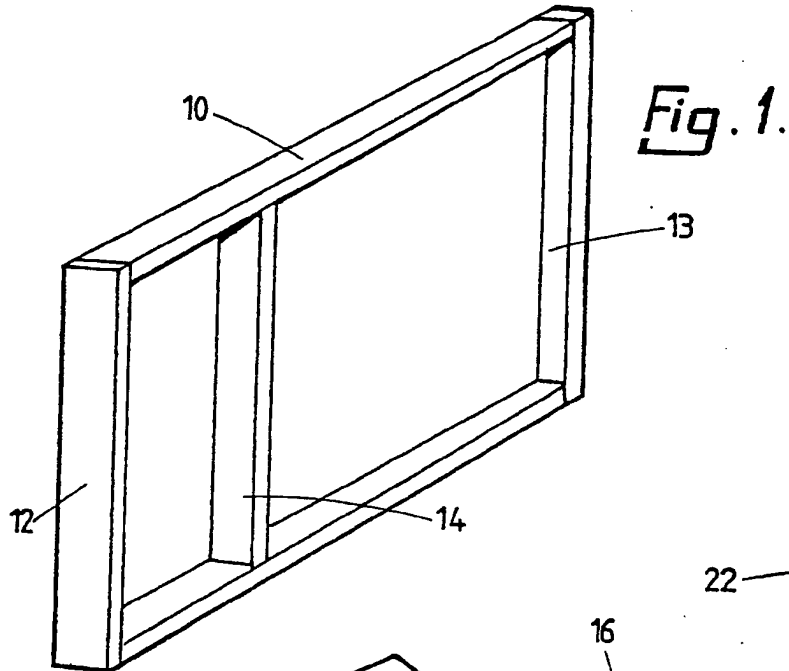
Fig. 2.

Fig. 8.



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The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.



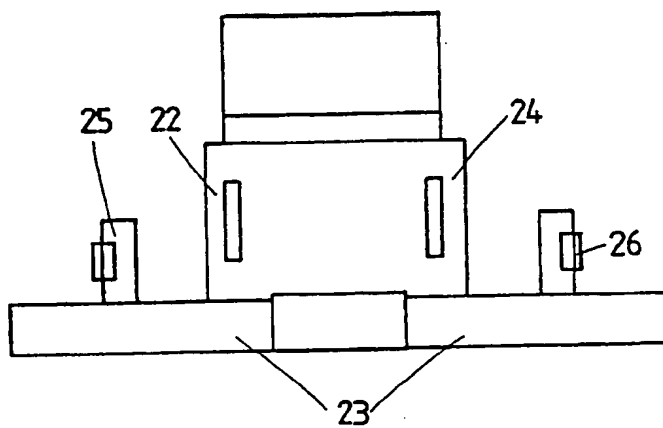


Fig. 5.

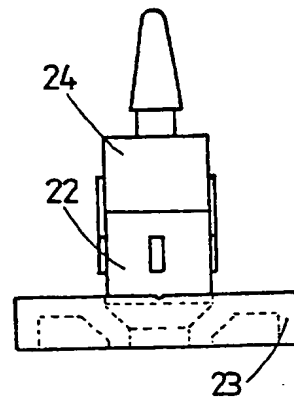


Fig. 6.

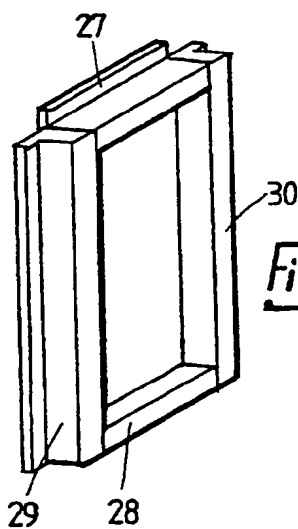


Fig. 7.

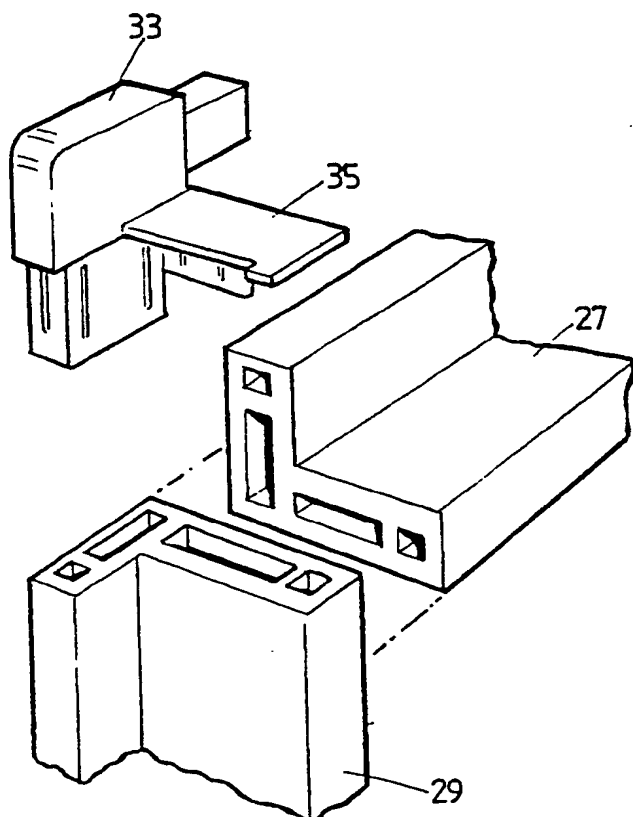
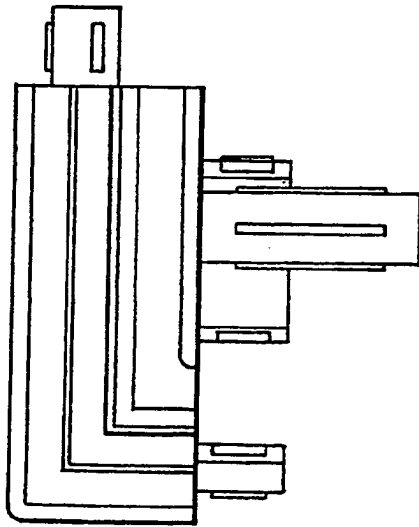
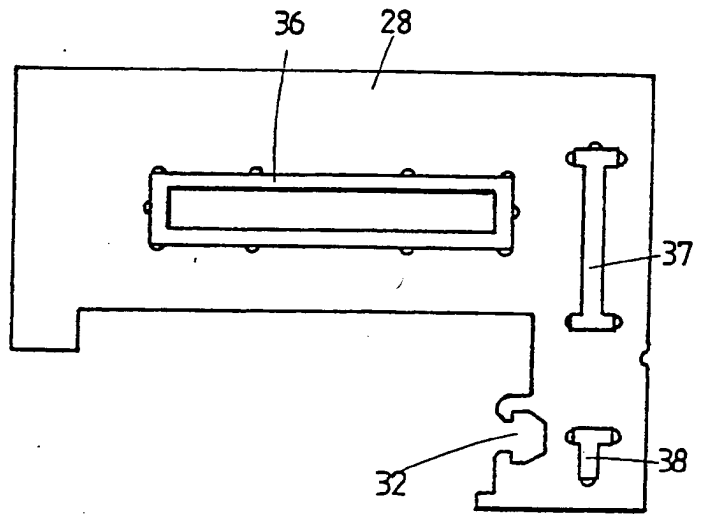
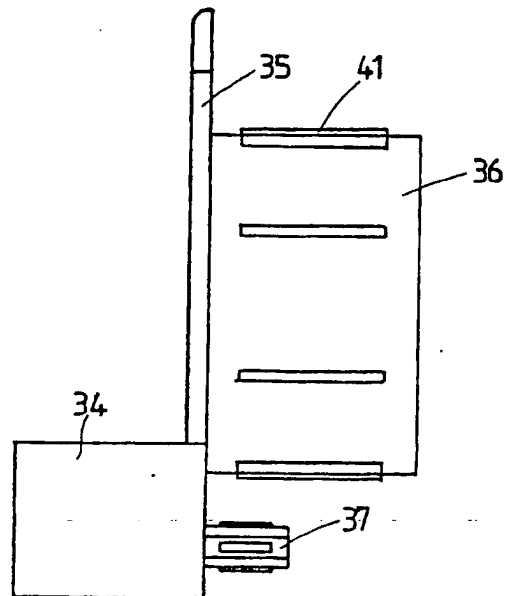


Fig. 8.

*Fig. 9.**Fig. 11.**Fig. 10.*

SPECIFICATION

Window constructions

- 5 This invention relates to window constructions, primarily, though not exclusively, of plastics materials. Such window constructions include members of various sections which are made up into a complete window frame assembly.

10 Window constructions of this kind take a number of forms depending upon the type of window assembly to be constructed, that is with fixed or opening panels or combinations of these. In conventional constructions, a whole range of special components of different sections are often required to make up a single window assembly and furthermore at certain junction positions in the assembly section changes may result in securement complications as well as risk of inadequate weather sealing.

There are in existence many different window constructions including those which have extruded sections which fit together in various combinations to provide a complete frame for one or more window panels which may or may not be openable. However, in general there are specially designed parts for each purpose. In consequence, tooling costs and stocking is expensive and complex. Various types of weather seals or glazing gaskets are also available for use with the sections of different manufacturers and often these have been specially designed for use with only one manufacturer's sections, although some are available for use with sections of more than one manufacturer.

Patent Application Number 8405314 refers to a frame component of elongated form and having at two opposite sides thereof formations for carrying sealing strips at either of the said opposite sides. This arrangement has many advantages in that it enables frames to be made up in different ways according to the particular requirement but in general, construction of window frames must be carried out using specialist equipment and in practice this means in a factory or equivalent and it is therefore largely inappropriate for the "do-it-yourself" market.

This is at least in part due to the fact that the components must be cut to the required length and then fixed together. It is usual in the manufacture of a square or rectangular frame for the corners to be mitred and in the particular construction referred to in Patent Application Number 8405314 the preferred method of securing the components together is by heat welding which requires specialist equipment of the kind not available to an individual in his own home.

It is therefore the object of this invention to provide a window construction which has the advantages of the construction in the said

Patent Application referred to but which is suitable for assembly without the use of specialised tools and expensive equipment.

According to the present invention there is provided a window construction comprising a plurality of components, each of elongated form and having, at two opposite sides thereof, formations for carrying sealing strips at either of said opposite sides, and the components being securable together in mutually transverse relationship using interengageable parts, at least one of which is secured to its component by engagement in the said formation on an appropriate side of that component.

Preferably the said parts are snap engageable together, having in one example respective tongue and socket elements.

The said at least one part which is secured to its component by the engagement with the said formation, has a connecting portion shaped and arranged to slidably engage in a groove or grooves formed in the said component longitudinally thereof.

Conveniently the other part is secured in the end of the other component, which is provided with a suitable opening to accommodate it.

The invention will now be described by way of example with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a window construction made up in accordance with the invention,

Figure 2 is an exploded perspective view of components making up the corner of the window construction,

Figure 3 is an enlarged sectional view of one of the components of the joint shown in Figure 2,

Figure 4 is a side view of the component shown in Figure 3,

Figure 5 is an enlarged plan view of the complementary component of the corner joint as shown in Figure 2,

Figure 6 is an end elevation view of the component shown in Figure 5,

Figure 7 is a perspective view of an openable window for use in the construction in

Figure 1,

Figure 8 is a perspective view of a corner joint of the window shown in Figure 7,

Figure 9 is an enlarged side view of the component used in the corner joint in Figure

8,

Figure 10 is an end view of the component in Figure 9 and

Figure 11 is an end view of one of the frame members in Figure 8 in end elevation.

Figure 1 shows a typical window construction which can be made up using the principle embodied in this invention. This comprises top, bottom and side members 10, 11, 12, 13 and an intermediate member 14, dividing the aperture into a large and small opening.

Typically the smaller opening accepts an openable window which is shown in Figure 7 and which will be further described. The construction shown in Figure 1 has a generally rectangular configuration and the components are cut with their ends straight whereby the end members 12, 13 abut onto the adjacent ends of the top and bottom members 10 and 11 respectively. Figure 2 shows this construction. The members 10, 11, 12, 13 and 14 are, in this example, made from plastics extrusions cut to the appropriate lengths. Each extrusion has internal openings which may contain hollow reinforcements one of which is indicated at 15 in Figure 2.

At each corner as that shown in Figure 2, the members are connected at a right angle. To achieve this a first connecting member 16 is engaged in the reinforcement 15 in one of the members. In this example such connecting member 16 is forced into the reinforcement 15 in the member 10. Such connecting member 16 is also shown in Figure 3 and 4. It has a hollow, rectangular section with a smaller rectangular opening 17 defined near its mid-region and flanked by a pair of integral hollow pegs 18. Externally, the member 16 has integral ribs 19 which serve to retain the connecting member 16 rightly into the reinforcement 15 within the member 10 by friction.

As shown, the side member 13 has a pair of longitudinally extending lipped grooves 21. Though not seen, there are such lipped grooves also on the internal side of the top member 10. Preferably, also, there are such grooves on the outside surfaces of each of the members 10 and 13 as well as the other members of the frame shown in Figure 1.

Engaging in the two grooves 21 shown in the member 13 there is a further connecting member 22. This is also illustrated on an enlarged scale in Figures 5 and 6. It comprises a pair of base elements 23 which are shaped to engage frictionally in the two grooves 21 respectively. They are spaced apart to accommodate the portion of the member 13 separating the two grooves 21. Projecting away from the two base elements and interconnecting them is a two-part spigot 24 of which the outer part is of arrow section, as seen particularly in Figure 6. The spigot 24 is flanked by a pair of holes to accommodate the pegs 18 of the other connecting element member 16 and beyond the holes are a pair of guides 25 each carrying an integral rib 26 which serves to provide frictional engagement with openings formed in the member 10 at opposite sides of the continuous opening which contains the reinforcement 15.

The two connecting parts 16 and 22 are therefore shaped to inter-engage the two-part spigot 24 of the connecting member 22 engaging between the pegs 18 of the connecting member 16 and the arrow-shaped outer

portion of the spigot 24 snap-engages into the opening 17 formed in the interior of the connecting member 16. By means of this arrangement, tight flush engagement is achieved between the members 10 and 13. Similar connections are made at the other corners. In order to prevent movement of the connecting member 16 in its frame member 10, screws rivets or other fastenings may be passed through at suitable positions. Furthermore, such fastenings may also pass through the spigot 24 of the connecting member 22. The positions of these is however not illustrated in the drawings.

In order to secure the connecting member 22 against sliding movement lengthwise of the member 13 screws or other fastenings may engage through holes preferably those aligned with the pegs 18 and into the member 13.

Figure 7 shows an openable window designed to fit into the smaller opening in the frame in Figure 1. This has top, bottom and side members 27, 28, 29, 30, each of which is generally of L-shape in cross-section having external flanges. The cross-section of these is shown in Figure 11 and it will be seen that the external flange has a longitudinal lipped recess 32 to accommodate a sealing strip of flexible material and whereby a weather seal is created between the openable window and the surrounding frame members.

Since the members 27, 28, 29, 30 have their ends cut square there are shown in Figure 7 gaps in the corners where the external flanges do not meet. In order to fill in the corner and also in order to interconnect the members at the corners there are provided respective corner pieces 33 shown in Figures 8, 9 and 10. Each such corner piece includes a flange portion which, as shown in Figure 9, is grooved at 34 to provide continuous recesses adjoining those in the members of the window and therefore having the same section as the recess 32. This enables weather seals to be completed at the corners of the frame.

Each corner piece also has a lateral platform 35 to which an integral spigot 36 is moulded. There is also a shallower spigot 37 which has its length perpendicular to that of the spigot 36. A still further smaller spigot 38 is also provided. All three spigots 36, 37, 38 are on the same surface of the corner piece 33 but on one end is a still further spigot 39. Each of the spigots is of rectangular form having external ridges identified at 41 which are intended to provide for tight frictional engagement between the spigots and openings into which they are intended to fit. In Figure 11 the end of the frame member 28 is shown with the spigots 36, 37 and 38 engaged in it. As can be seen in this view the spigots 37, 38 have lateral projections and this aids engagement and tight-fitting in the respective

openings in the member 28.

The spigot 39 furthermore engages in the opposite member of the frame which as seen in Figure 8 is provided with an appropriate opening to accept it. Thus when fitted in place the corner piece 33 provides a complete in-fill for the corner defining a flange which meets those on the two adjacent members and the platform 35 covers the opening provided in the top cut end of the member 29 as seen in that view.

With these arrangements it is possible for frames to be made up in any size required and furthermore cutting and assembly can be carried out using simple tools such as a hacksaw to cut the ends of the members square and if needed holes for the fastenings to secure the components together.

20 CLAIMS

1. A window construction comprising a plurality of elongate components each having a formation for carrying a sealing strip on at least one side thereof, wherein a plurality of interengageable parts are provided for securing the components together in mutually transverse relationship, at least one of said parts being adapted for engagement with the formation provided on one of components.

2. A window construction according to claim 1, wherein each pair of adjacent components is secured together by a pair of interengageable parts, and the parts of each pair are snap engageable together.

3. A window construction according to claim 2, wherein the parts of each pair include interengageable tongue and socket elements.

4. A window construction according to claim 1, 2 or 3, wherein said at least one part has a connecting portion shaped and arranged to slidably engage in a groove or grooves formed in said one component longitudinally thereof and constituting said formation.

5. A window construction according to any preceding claim, wherein at least one other of said parts is adapted for engagement in an opening in the end of one of the components.

6. A connector for securing together elongate components in a window construction, each of which has a formation for carrying a sealing strip on at least one side thereof, wherein the connector is provided to secure the components together in mutually transverse relationship and has at least one part adapted for engagement with the formation provided on one of the components.

7. A window construction comprising a plurality of elongate components each of which is cut square at each end and has a formation for carrying a sealing strip on at least one side thereof, wherein a plurality of corner connectors are provided for securing the components together in mutually transverse relationship, each connector being adapted for engagement

with the adjacent end of each of the two mutually transverse components which it secures together and having a face formed with a formation which forms a continuation of the formations of the adjacent components when said components are secured together by the connector.

8. A corner connector for securing together elongate components in a window construction, each of which is cut square at each end and has a formation for carrying a sealing strip on at least one side thereof, wherein the connector is adapted for engagement with the adjacent end of each of two components which it secures together in mutually transverse relationship and has a face formed with a formation which forms a continuation of the formations of the adjacent components when said components are secured together by the connector.

9. A window construction substantially as hereinbefore described with reference to Figures 1 to 6 or Figures 7 to 11 of the accompanying drawings.

10. A connector for securing together elongate components in a window construction, the connector being substantially as hereinbefore described with reference to Figures 1 to 6 or Figures 7 to 11 of the accompanying drawings.

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